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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/652,785

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Gopinath Kuduvali

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05/01/2008

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EXAMINER

LAMPRECHT, JOEL

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

05/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/652,785	Applicant(s) KUDUVALLI ET AL.	
	Examiner JOEL M. LAMPRECHT	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/14/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 13-15, and 18-30 are objected to because of the following informalities: Regarding claim 18, "the transform parameters (x-a, y-a, theta-a)" lacks antecedent basis. Regarding claims 13-15, 18 and others, DRR should be defined. Regarding claims 24 and 29, it is unclear what additional structural element has been set forth. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grzeszczuk et al (US 6,782,287 B2) in view of Thomson (US 7,171,257). Grzeszczuk

et al discloses and teaches a method for aligning the position of a target relative to a radiological beam including the acquisition of pre-operative reference images, generation of 2d reconstructed projections of the 3d scan, (Col 3 line 34-Col 4 Line 20) acquiring x-ray images of a target during treatment and registering the reconstructed images with the x-ray images by the use of 3D transformation parameters including translations and rotations in three dimensions to adjust the position of within the full six degrees of freedom provided by the transformation parameters (Col 4 Line 7-20, Column 7 Line 1-57). During the process of registration multiple views of the reference reconstructions are registered using 3d transformations with the intraoperative x-ray acquisitions to reconstruct DRRs within a full six-degree of freedom registration onto the projections including three translations and three rotations (Col 8 Line 19-Col 9 Line 40). The estimation of in-plane transformations is not just performed on a surface estimation (Col 2 Line 50-Col 3 Line 10); the radiographs and DRRs are normalized to unit length and intensity thresholded for enhanced out-of-plane estimation, and are refined to an accuracy of ± 0.02 mm and ± 0.05 degrees with a pixel pitch of 1.0 mm, giving sub-pixel accuracy (Col 7 Line 36-Col 8 Line 20, Fig 3, Col 8 Line 2—48). The recitation of means plus function language is acknowledged in claims 23-30, and although the structure disclosed by Grzeszczuk et al is not identical, it is capable of performing the same function as that of the claimed invention.

Grzeszczuk et al do not disclose the use of a radiosurgical beam generator itself, as their disclosure focuses on the tracking of a medical instrument rather than the positive recitation of a radiosurgical beam such as that of the Cyberknife system

referenced in column 7 so attention is directed to the secondary reference by Thomas which clearly discloses in figure 4 the generation and adjustment of a radiosurgical beam in response to registration details from pre-operative and real-time surgical scan data (Also Col 7 Line 25-Col 8 Line 45). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the radiosurgical beam generator adjustment system of Thomas which includes pre-operative planning and registration in three dimensions in the image registration system of Grzeszczuk et al for the purpose of providing the most accurate and customizable radiosurgical system and method (Grzeszczuk Col 3 Line 35-Col 4 Line 53).

Response to Arguments

Applicant's response to the double patenting rejection has been approved 11/20/07 and the previous double patenting rejection has been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOEL M. LAMPRECHT whose telephone number is (571)272-3250. The examiner can normally be reached on Monday-Friday 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3737

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/
Primary Examiner, Art Unit 3737

JML